

<p align="center">39 DETERMINATION OF EVAPORATED SOLIDS IN ALCOHOLIC BEVERAGES</p>	<p align="center">Page 1 of 2</p>
<p align="center">Division of Forensic Science TOXICOLOGY TECHNICAL PROCEDURES MANUAL</p>	<p>Amendment Designator:</p>
	<p>Effective Date: 31-March-2004</p>
<p align="center">39 DETERMINATION OF EVAPORATED SOLIDS IN ALCOHOLIC BEVERAGES</p> <p>39.1 Summary</p> <p>39.1.1 Solids content of a distilled alcoholic beverage is a basic indicator of the consistency of quality of the brand. Examination of the color and texture of the evaporated solids also gives an indication to the concentrations of some components and may indicate additional tests should be conducted. This procedure is routine for distilled alcoholic beverages listed for sale by the Virginia Department of ABC.</p> <p>39.2 Apparatus</p> <p>39.2.1 Drying oven</p> <p>39.2.2 Evaporating dishes, porcelain, 50mL volume</p> <p>39.2.3 Pipets, Class A, 50mL</p> <p>39.2.4 Analytical balance</p> <p>39.2.5 Steam bath</p> <p>39.2.6 Dessicator</p> <p>39.3 Control</p> <p>39.3.1 Bourbon whiskey quality control sample</p> <p>39.4 Procedure</p> <p>39.4.1 Tare evaporating dishes using analytical balance. Record tare weight on solids tare worksheet.</p> <p>39.4.2 Pipet 50 mL of control bourbon whiskey and case samples into evaporating dishes.</p> <p>39.4.3 Evaporate all samples to dryness on steam bath.</p> <p>39.4.4 Dry residues for 30 minutes in drying oven preheated to 100° C.</p> <p>39.4.5 Transfer evaporating dishes to dessicator and allow to cool for 30 minutes.</p> <p>39.4.6 Weigh each evaporating dish and record weights on solids tare worksheet.</p> <p>39.5 Calculation</p> <p>39.5.1 Calculate concentration of evaporated solids (in 50 mL sample) using the following equation:</p> $[\text{weight of dish with solids} - \text{tare weight of dish}] \times 2000 = \text{gm evaporated solids per 100 L}$ <p>39.6 Interpretation</p> <p>39.6.1 Compare concentration of evaporated solids with previously analyzed known brands and beverages.</p> <p>39.6.2 A value lower than normal for that brand or product may indicate a younger, less aged product.</p>	

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<p>39.6.3 Other variations in the concentration of evaporated solids may indicate possible changes in water source during manufacturing.</p> <p>39.6.4 Color and patterns of evaporated solids may be useful and should be recorded on worksheet.</p> <p>39.6.4.1 A granular, black deposit strongly indicates copper and heavy metals</p> <p>39.6.4.2 A spiral solids pattern is characteristic of some tequilas</p> <p>39.7 Quality Control</p> <p>39.7.1 Evaporated solids of bourbon whiskey quality control sample must be within $\pm 10\%$ of the mean (based on historical data of the QC sample)</p> <p>39.8 References</p> <p>39.8.1 AOAC 15th edition, 920.47, 1990.</p>	